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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 10/533,108

Filing Date: May 27, 2005

Appellant(s): WEILAND, JOSEF

Daniels Patent Law PLLC

Attorney
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 26 February 2010 appealing from the Office action mailed 4 May 2009.

(1) Real Party in Interest

The examiner has no comment on the statement, or lack of statement, identifying by name the real party in interest in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The following is a list of claims that are rejected and pending in the application: Claims 39-44, 46, 48-50, 52, 53, 55-76, 78-89 are pending. Claims 86-89 have been withdrawn from consideration. Claims 39-44, 46, 48-50, 52, 53, 55-61, 63, 34, 71-76, 78-85 are rejected. Claims 62 and 65-70 have been indicated as allowable but objected to for depending upon a rejected claim.

(4) Status of Amendments After Final

The examiner has no comment on the appellant's statement of the status of amendments after final rejection contained in the brief.

(5) Summary of Claimed Subject Matter

The examiner has no comment on the summary of claimed subject matter contained in the brief.

(6) Grounds of Rejection to be Reviewed on Appeal

The examiner has no comment on the appellant's statement of the grounds of rejection to be reviewed on appeal. Every ground of rejection set forth in the Office action from which the appeal is taken (as modified by any advisory actions) is being maintained by the examiner except for the grounds of rejection (if any) listed under the subheading "WITHDRAWN REJECTIONS." New grounds of rejection (if any) are provided under the subheading "NEW GROUNDS OF REJECTION."

WITHDRAWN REJECTIONS

The following grounds of rejection are not presented for review on appeal because they have been withdrawn by the examiner. The rejection of claims 76 and 80 under 35 U.S.C. 112, first paragraph have been withdrawn.

(7) Claims Appendix

The examiner has no comment on the copy of the appealed claims contained in the Appendix to the appellant's brief.

(8) Evidence Relied Upon

Wandres GmbH micro cleaning, "Ingromat-Cleaner CH29 Null-Fehler-Strategie in der Produktion", (May 1999), pp. 4-7

(Note: The Non-Patent Literature reference submitted by the appellant in the appendix of the Appeal Brief is not an English language equivalent of the Ingromat reference cited in the examiner's rejections, please refer to page numbers and drawings from the German Ingromat publication, as opposed to the appellant's attached document)

2/767413	HERRINGTON	10-1956
2,958,882	McCORMICK	11-1960
559,166	DERBY	4-1896
5,237,716	LISEC	8-1993
5,634,397	HUTCHINSON ET AL.	6-1997

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

1. Claim 39, as well as claims 40-44, 48-50, 52, 53, 55-75 and 85 which all depend therefrom, are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claim 39 contains the limitation that the brushes of the first and second conveyor devices machine substantially all of the edge surface and the brushes of the third and fourth conveyor devices also machine substantially all of the edge surface, suggesting that at least one brush from one conveyor will machine the entire edge surface. However, there is no support in the original application that at least one brush on the first and second conveyor devices as well as the third and fourth conveyor devices *each* contact and machine substantially all of the edge surface of the workpiece. At most, the original specification supports that the edge surface is machined by all of the brushes, working together, but there is no sufficient support that

substantially **all** of the edge surface is **individually** machined by each pair, or any **one** of the first and second conveyor devices and/or the third and fourth conveyor devices.

2. Claim 78, as well as claim 79 which depends therefrom, are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claim 78 contains the limitation that the first and second conveyor devices guide the brushes along an **entirety** of the edge surface of the workpiece. However, again there is no support in the original application that **each** of the brushes are guided along the **entire** edge surface of the workpiece. At most, the original specification supports that the edge surface is machined by all of the brushes, working together, but there is no sufficient support that the **entire** edge surface is machined by **each** brush.

NOTE: The other pending claims including similar limitations that claim that "substantially all of the edge surface" is contacted by brushes and/or machined is only considered to be supported by the original application under the broadest reasonable interpretation of the term "substantially all" meaning at least portions of the edge surface are machined. The original application, specifically paragraph 20, as cited by the appellant, states that edges are machined, but does not further disclose that all of or even that any specific amount of the edges are actually machined. Therefore, in the rejections to be discussed below, the Examiner will treat the term "substantially all of the

edge surface", as used in the claims, to broadly read on at least portions of the edge surfaces, as best supported by the original application.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 39-42, 46, 48-50, 57-61, 63, 71-74 and 78 are rejected under 35 U.S.C. 103(a) as obvious over The Ingromat-Cleaner CH 29 publication (to be referred to hereinafter as Ingromat) or, in the alternative, under 35 U.S.C. 103(a) as obvious over Ingromat in view of Herrington (2,767,413).

5. In reference to claim 39, the Ingromat reference discloses (on pages 16, 17 and 31) an apparatus for machining a workpiece being one of strip or plate form having first and second main surfaces and at least an edge surface extending between the first and second main surfaces, the apparatus being obviously capable of removing material from at least substantially all of the edge surface of the workpiece because the distance between the conveyor devices is adjustable and may therefore be adjusted such that the brushes will overlap the edge surface and contact at least a majority, or the entirety, of the edge surface when moving toward the main surfaces. In the case that the workpiece is relatively thin, even a slight overlap of the brushes would allow the

apparatus to contact and treat the entirety of the edge surface. The apparatus of the Ingromat reference (pg. 16 and 17) comprises at least first, second, third and fourth conveyor devices and each of the first, second, third and fourth conveyor devices has at least one brush, each of at least the first, the second, the third and the fourth conveyor devices guides the respective at least one brush at least approximately linearly along the first main surface and the edge surface of the workpiece to be machined transversely with respect to an advance direction of the workpiece, two of the conveyor devices (any two consecutive conveyors in the direction of advancement seen on the top surface on page 31; direction of rotation shown on page 17) rotate in opposite directions and may be positioned for treating the first main surface and at least a portion of the edge surface of the workpiece, the other two conveyor devices (any two consecutive conveyors in the direction of advancement seen on the bottom surface on page 31; direction of rotation shown on page 17) rotate in opposite directions and may be positioned for treating the second main surface and at least another portion the edge surface of the workpiece, and the first, second, third and fourth conveyor devices rotate so as to guide brushes along the first and second main surfaces of the workpiece and wherein the at least one brush from the first and second conveyor devices will machine substantially all* (at least a portion of; as most broadly and reasonably interpreted to be supported by the appellant's original disclosure, as discussed *supra*) of the edge surface in opposite directions and the at least one brush from the third and fourth conveyor devices will machine substantially all* of the edge surface in opposite directions. Further the shape of the workpiece would greatly affect the ability of the

Ingromat cleaner to machine substantially all of the edge surface. For instance, a workpiece having a polygonal cross-section with angled walls () would make it easier for a brush from the first and third (top) conveyors to each contact the entire edge surface, as claimed. Thus, it further would have been obvious that a workpiece of a certain shape would also make individual brushes of the Ingromat apparatus capable of contacting substantially all of the edge surface. Although the Ingromat reference does not specifically disclose that the first, second, third and fourth conveyor devices rotate so as to guide brushes along the *entirety* of a length available for the workpiece to pass through, the Ingromat reference does discloses other embodiments (pages 4-7) having two conveyor devices that are located along respective first and second main surfaces of the workpiece and rotate so as to pass brushes along the entirety of a length available for the workpiece to pass through on the first and second main surfaces of the workpiece, thus providing equal contact between the brushes and the entire main surfaces of the first and second sides of the workpiece, which will provide a uniform cleaning effect along the entirety of both main surface of the workpiece because the same number of brushes will contact the entirety of each main side of the workpiece. Therefore, it would have been obvious to one of ordinary skill in the art to extend each of the plurality of conveyor devices shown on pages 16, 17 and 31, such that every conveyor device will guide their respective brushes over the entirety of a length available for the workpiece to pass through on the respective first and second main sides of the workpiece to provide an even and uniform cleaning effect to every portion of both main surfaces of the workpiece instead of providing twice the number of brushes

contacting a middle, overlapping portion as the number of brushes contacting either side of each main surface of the workpiece, as shown in the embodiment on pages 16, 17 and 31. The combination of the two embodiments disclosed in the Ingromat reference is essentially substituting a known element (conveyors passing over a portion of the main surface of the workpiece from pages 16, 17 and 31) with another (conveyor passing across the entire main surface of a workpiece from pages 4-7) to obtain predictable results (an apparatus having multiple conveyor devices, rotating in a direction opposite the direction of adjacent conveyor devices, wherein every conveyor passes over the entirety a respective main surface of a workpiece will predictably provide a thorough and uniform cleaning effect to the main surfaces of the workpiece). Additionally, the Ingromat reference fails to disclose that the apparatus is used to remove an oxide layer from a surface of the workpiece. However, it would have been obvious that the brushes and conveyor devices, as disclosed in the Ingromat reference, being adjustable with respect to the workpiece to adjust contact pressure between the brushes and the workpiece, may be capable of removing at least a portion of an oxide layer from a surface of a workpiece over a given amount of time or treating the surface by cleaning debris off of the surface, which may be considered to be "machining" in the broadest reasonable interpretation of the term. In the alternative, Harrington discloses a similar apparatus that is disclosed as being used to remove scale, which is well known in the art as being an oxide layer, from metallic surfaces and comprises multiple rotary brushes that engage a first main surface of a workpiece that is in strip or plate form. Harrington further discloses specific bristle material for the brushes that is capable of

removing the oxide layer. Herrington however only removes the oxide layer from one main surface of the workpiece at a time and due to the round shape of the brushes may only remove the oxide layer from a limited width on the main surface of the workpiece. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the Ingromat apparatus with brushes having the bristles disclosed by Herrington to allow the Ingromat apparatus to remove oxide layers from a large area of both the first and second main surfaces of a workpiece at the same time in order to provide a much more efficient and effective apparatus for removing oxide layers from metallic workpieces that may be used on much larger workpieces than the apparatus of Herrington. It is obvious that the brushes are removable and interchangeable in the Ingromat apparatus, thus providing the apparatus with an alternative set of brush conveyors having bristles capable of removing scale, as taught by Herrington, would provide the apparatus with an alternative function that may be interchanged with the intended function disclosed in the Ingromat reference.

6. In reference to claim 40, the Ingromat reference further discloses that the conveyor devices are positioned in a lying position such that the at least one brush on each of the first, second, third and fourth conveyor devices runs substantially horizontally along the workpiece in a lying position.

7. In reference to claim 41, the Ingromat reference further discloses that the workpiece is guided between the first and the second conveyor devices (the first conveyor being any of the conveyors on the upper portion of the apparatus and the second conveyor being any of the conveyors on the lower portion of the apparatus)

Art Unit: 3727

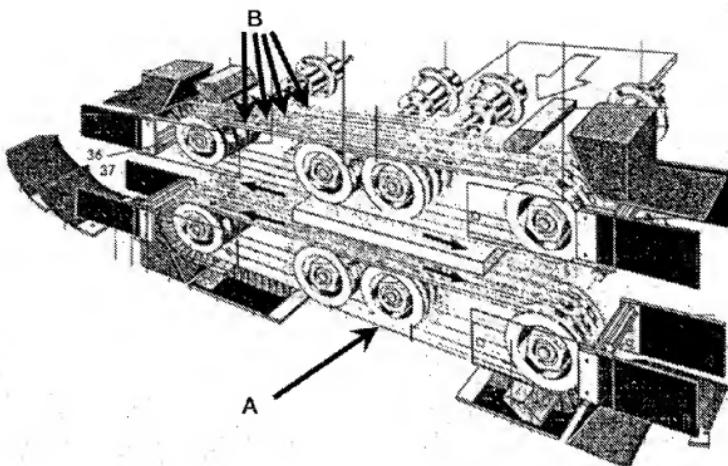
such that each of the first and second conveyor devices machines one of the first and second main surfaces of the workpiece.

8. In reference to claim 42, the Ingromat reference further discloses that the direction of rotation of the first and second conveyor devices is selected such that the brushes of the first and second conveyor devices are guided past the opposed first and second main surfaces of the workpiece in a same direction, wherein the first and second conveyor devices are considered to be any respective conveyors on opposite sides of the workpiece that rotate in the same direction.

9. In reference to claim 46, the Ingromat reference discloses an apparatus capable of "machining" a workpiece being one of strip or plate form having first and second main surfaces and an edge surface extending therebetween, the apparatus for removing material from the edge surface of the workpiece wherein the apparatus comprises at least first and second conveyor devices and each of the first and second conveyor devices has at least one brush, wherein the brushes disclosed may be capable of removing an oxide layer or alternatively it would have been obvious to replace the brush bristles of the Ingromat reference with the brush bristles disclosed by Herrington to allow the Ingromat apparatus to remove oxide layers from workpieces, as discussed supra, each of the at least first and second conveyor devices guides the respective at least one brush at least approximately linearly past the edge surface of the workpiece to be treated transversely with respect to an advance direction of the workpiece, the first and second conveyor devices rotate in opposite directions and the first conveyor device

Art Unit: 3727

may be positioned for treating at least a portion of the edge surface of the workpiece while the second conveyor device may be positioned for treating at least a portion of the edge surface of the workpiece and the first and second conveyor devices are arranged slightly offset with respect to one another in the advance direction in which the workpiece passes through wherein the at least one brush from each of the first and second conveyor devices may obviously be positioned to machine the edge surface of the workpiece in opposite directions to machine substantially all* of the edge surface of the workpiece. The first and second conveyor devices will be offset from one another in the embodiment shown on pages 16, 17 and 31, wherein for example, the first conveyor is considered to be the front most conveyor on the lower surface (A below) and the second conveyor is considered to be any of the conveyors on the upper surface that rotate in an opposite direction to the first conveyor (any one of B below), all of which are offset in the direction of advancement of the workpiece from the first conveyor.



10. In reference to claim 48, the Ingromat reference further discloses that each of the conveyor devices have a plurality of brushes.
11. In reference to claim 49, the Ingromat reference further discloses a guide passage between the upper and lower sections which may be set to a thickness of the workpiece by which the workpiece may be displaced with guidance transversely with respect to the direction of rotation of the at least one of the conveyor devices.
12. In reference to claim 50, the Ingromat reference further discloses that an adjustment means for adjusting the distance between the first and second conveyor devices, which makes the apparatus obviously capable of displacing or adjusting the first and second conveyor devices with respect to one another to correct for wear of the at least one brush.

Art Unit: 3727

13. In reference to claim 57, the Ingromat reference fails to disclose a specific rotational speed for the brush, but it would be obvious that different speeds would be desired for different work pieces under different circumstances and it would further be found obvious through routine experimentation, depending on the desired work piece, to rotate the brushes at a speed within 5-30m/s. The appellant fails to provide any evidence of criticality or unexpected results for the claimed speed range (see MPEP 2144.05).

14. In reference to claim 58, the Ingromat reference further discloses that each of the conveyor devices has an independent drive.

15. In reference to claim 59, the Ingromat reference further discloses that each of the conveyor devices may be a V-belt as shown on page 33.

16. In reference to claim 60, the Ingromat reference discloses that each of the conveyor devices may be a V-belt, as discussed supra relative to claim 59, and the Ingromat reference further discloses that the conveyor devices may have different widths. Therefore, it would further be obvious when the conveyor device has larger widths to make the conveyor device in the form of a double or triple V-belt to accommodate the extra width and brushes required without increasing the thickness of the belt. It would further be obvious that in the case of a triple V-belt, at the middle V-belt would accommodate at least some of the brushes.

17. In reference to claim 61, it would further be obvious to form the V-belt, as disclosed by the Ingromat reference, out of rubber because it is old and well known in the art to form V-belts out of rubber material.

18. In reference to claim 63, as discussed supra, it would have been obvious to form the V-belt out of rubber and to attach the brushes or the bristles to the V-belt by a bond.
19. In reference to claim 64, it would further be obvious that at least the top portion of the V-belt may be considered to be the carrier because the top portion carries the brushes and that the middle portion of the V-belt may also be considered to be an elevation on the top of the V-belt for guiding and supporting the carrier.
20. In reference to claim 71, the Ingromat reference further discloses a resistance element (first shown on the bottom of page 17 and more clearly shown as numbers 36 and 37 on page 31) that is located downstream from a diversion point of the conveyor device, as seen in the direction of rotation, before one of the brush or bristles resumes contact with the workpiece.
21. In reference to claim 72, the Ingromat reference further discloses that the resistance element is located in a region in which the brush or bristles leave the circular path produced by the diversion point of the conveyor device and returns to a linear or rectilinear movement.
22. In reference to claim 73, the Ingromat reference further discloses that the resistance element mechanically prevents the bristles from yielding in the direction of rotation.
23. In reference to claim 74, the Ingromat reference further discloses that the resistance element is introduced into a path of the brush or bristles such that tips of the bristles butt against the resistance element.

24. In reference to claim 78, the Ingromat reference or alternatively the Ingromat reference in view of Herrington, as discussed supra discloses an apparatus comprising at least first and second conveyor devices each having at least one brush guided at least approximately linearly past a region of the workpiece to be treated transversely with respect to an advance direction of the workpiece, the first and second conveyor devices rotate in opposite directions to one another and are positioned for respectively treating the first and second main surface of the workpiece and the first and second conveyor devices are both either obviously capable of or would obviously be modified to rotate so as to treat the edge surface of the workpiece, as discussed supra.

25. Claim 43 is rejected under 35 U.S.C. 103(a) as being unpatentable over the Ingromat reference or alternatively the Ingromat reference in view of Herrington, as discussed supra, and further in view of McCormick et al. (2,958,882).

26. The Ingromat reference discloses the apparatus wherein it the brushes disclosed may be capable of removing an oxide layer or alternatively it would have been obvious to replace the brush bristles of the Ingromat reference with the brush bristles disclosed by Herrington to allow the Ingromat apparatus to remove oxide layers from workpieces, as discussed supra. However, the Ingromat reference fails to disclose a base plate or that the apparatus is arranged in a standing position such that the first and second conveyor devices are guide the respective brushes past the workpiece wither ion the direction of the base plate or from a top of the apparatus downward. It clearly would have been obvious that the Ingromat apparatus may be oriented vertically if desired to

treat a workpiece that is in an upright position. In this case, the conveyor devices and advance direction of the workpiece will all be relatively situated in the same orientation as the apparatus disclosed by McCormick. McCormick further discloses a base plate in the form of a tabletop that is necessary to support the workpieces during treatment by the conveyor devices. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made that in order to use the Ingromat apparatus to treat a workpiece in a vertical orientation, the Ingromat apparatus would require a base plate to support the workpiece wherein at least one of the conveyor devices on either side of the workpiece, which may be considered to be respective first and second conveyor devices, will be rotating so as to guide the brushes toward the base plate or from a top of the apparatus downward.

27. Claim 44 is rejected under 35 U.S.C. 103(a) as being unpatentable over the Ingromat reference or alternatively the Ingromat reference in view of Herrington, as discussed supra, and further in view of Derby (559,166).

28. The Ingromat reference discloses the apparatus wherein it the brushes disclosed may be capable of removing an oxide layer or alternatively it would have been obvious to replace the brush bristles of the Ingromat reference with the brush bristles disclosed by Herrington to allow the Ingromat apparatus to remove oxide layers from workpieces, as discussed supra. However, the Ingromat reference fails to disclose a delimiting plate in the apparatus. In the orientation of the Ingromat apparatus as disclosed, the workpiece is fed relative to the conveyor devices in a similar manner as the workpieces

Art Unit: 3727

as disclosed by Derby wherein Derby further discloses clamping blocks (d⁶), which may also be considered to be delimiting plates, located on either side of the workpiece to prevent the workpiece from being pushed out of position by the motion of the conveyor devices having treating parts thereon. Therefore, it further would have been obvious to provide the Ingromat apparatus with similar clamping blocks or delimiting plates to maintain the workpiece in a desired position during treatment, as taught by Derby. In this case, any two of the conveyor devices that guide their respective brushes in the same direction may be considered to be the first ad second conveyor devices, which will both guide the brushes along the workpiece in the direction of a delimiting plate which guides the workpiece at one side.

29. Claims 52, 55, 56 and 75 are rejected under 35 U.S.C. 103(a) as obvious over Ingromat in view of Herrington (2,767,413).

30. In reference to claim 52, when using the bristles disclosed by Herrington in place of the bristles of the Ingromat reference, as discussed supra, it would further be obvious that the bristles must be at least somewhat abrasive to remove an oxide layer from metal.

31. In reference to claim 55, the base of the bristles disclosed by the Ingromat reference and by Herrington are both surrounded by some portion of the support wherein the surrounding portion may be considered to be a stabilizing and supporting sheath.

Art Unit: 3727

32. In reference to claim 56, page 33 of the Ingromat reference shows the brush bristles to be formed as part of a belt of the conveyor device, thus it would have been obvious to one of ordinary skill in the art that the bristles may be coupled to the respective conveyor device by a bond to form a strong connection between the brushes and the conveyor devices.

33. In reference to claim 75, as discussed supra, it would have been obvious that each of the conveyor devices is a V-belt having bristles coupled onto a top side thereof by a bond either directly or via a carrier and at least some of the bristles are inclined by up to 45° in the direction of rotation of the V-belt.

34. Claims 53, 76, 79-81, 83, 84 and 85 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Ingromat reference or alternatively the Ingromat reference in view of Herrington, as applied to claims 39, 46 and 78, and further in view of Lisec (5,237,716).

35. In reference to claims 53, 79, 80, 81, 83, 84 and 85, the Ingromat reference, having the structure discussed supra, is obviously capable of fully machining at least the side edge surface of a workpiece, specifically in a situation that the workpiece is relatively thin and the brushes may be spaced such that each brush overlaps the entire sides of the workpiece, as discussed supra. Further, the Ingromat reference shows that some of the bristles on the brushes may be angled (bristle tufts shown on pg. 17 have bristles angled in both directions and perpendicular to the direction of movement) in the direction of rotation of the respective conveyor devices, but Ingromat fails to disclose

that the brushes are angled at up to 45° such that the tip of each bristle is in front of, in the direction of rotation, the opposite end of the respective adjacent bristle in the direction of rotation. Liseck discloses a similar treating apparatus for treating (by cleaning, similar to Ingromat) a workpiece, wherein the workpiece passes along the apparatus and is contacted and treated by a plurality of rotating brush mechanisms and Liseck further teaches that the bristles on the brushes are angled in a direction perpendicular to the direction of movement of the workpiece and that adjacent brush mechanisms have the bristles angled in opposite directions to one another, which will ensure that the bristles will reliably contact and treat not only the surfaces (33) directly facing the brushes but also the entire side (35) and interior edge (34) surfaces of the workpiece (Col. 2, lines 3-33). Therefore, it further would have been obvious to one of ordinary skill in the art at the time the invention was made to angle the bristles of each conveyor device of the Ingromat apparatus in a direction that is perpendicular to the direction of movement of the workpiece and to alternate the direction of inclination between adjacent brushes to endure that outer edges and interior edges facing opposite directions are all contacted and treated by the angled bristles, as taught by Liseck. Further, although Liseck does not disclose a specific angle, the Liseck reference does clearly show that the bristles are angled such that the tip of each bristle is in front of, in the direction that the bristles are angled, the opposite end of the respective adjacent bristle in the direction that the bristles are angled. Therefore, it would further have been obvious, when the bristles are angled, as taught by Liseck, that the brushes would be angled in the direction of rotation for each conveyor device to increase the contacting

effect on each side outer and inner edge surface such that the tip of each bristle is in front of, in the direction of rotation, the opposite end of the respective adjacent bristle in the direction of rotation. Finally, Lisec fails to provide a specific angle at which the bristles are inclined, but does clearly disclose that the angle is a result effective variable that will affect the result of the cleaning apparatus based on different workpieces and brushes. Therefore, because the appellant fails to provide any evidence of criticality or unexpected results for the claimed angles, it further would have been obvious through routine experimentation that the bristles may be angled at up to 45° or may specifically be angled at about 15° relative to the direction of rotation (see MPEP 2144.05).

36. In reference to claim 76, the Ingromat, Herrington and Lisec references make obvious an apparatus for machining (removing oxide or scale) a workpiece with an edge surface, wherein each of the first, second, third and fourth conveyor devices, having angled bristles, as taught by Lisec, will ensure contact and complete machining of the edge surface of the workpiece and wherein the first and second and the third and fourth conveyor devices are respectively offset to one another along a direction of travel of the workpiece on the opposite first and second sides of the workpiece, as discussed supra, wherein a method for machining a metallic workpiece to remove an oxide layer from an edge surface thereof will obviously comprise the steps of providing and operating the first, second, third and fourth conveyor devices such that at least one brush runs at least approximately linearly across a desired surface of the workpiece, guiding the workpiece past the first, second third and fourth conveyor devices transversely with respect to a direction of rotation of the conveyor devices, the first and third conveyor devices rotating

Art Unit: 3727

in opposite directions and machining the first surface and the edge surface of the workpiece and the second and fourth conveyors rotating in opposite directions and machining the second surface and edge surface of the workpiece, aligning the first and second conveyor devices in an offset manner along a travel direction of the workpiece on the opposite first and second sides of the workpiece and aligning the third and fourth conveyor devices in an offset manner also along the travel direction of the workpiece on the opposite first and second sides of the workpiece and ensuring contact and complete machining of the edge surface between the first, second, third and fourth conveyor devices and each of their respective brushes along the entire respective edge surface of the workpiece.

37. Claim 82 is rejected under 35 U.S.C. 103(a) as being unpatentable over the Ingromat reference in view of Lisec (5,237,716) or alternatively the Ingromat reference in view of Herrington and Lisec (5,237,716), as applied to claims 80 and 81, and further in view of Hutchinson et al. (5,634,397).

38. The combination of the Ingromat reference with Herrington and/or Lisec provides the apparatus as discussed supra, but fails to disclose that the carrier segments of the conveyor devices each include a groove and a tongue on opposite ends to be connected to tongues or grooves, respectively, of adjacent carrier segments. Hutchinson discloses a similar cleaning machine including at least one conveyor device carrying brushes for cleaning a workpiece and teaches that the conveyor device(s) is comprised of a plurality of carrier segments (54), each having a groove (61) and a

tongue (62) to engage adjacent tongues and grooves, respectively, which will allow the conveyor to be driven by a toothed sprockets (45/46), which will ensure reliable driving of the conveyor and the separate carrier segments will allow a user to quickly and easily remove and replace a damaged segment or a segment having damaged or missing brushes thereon. Therefore, it further would have been obvious to provide the conveyor devices of the Ingromat reference to have similar structure as the conveyor devices taught by Hutchinson, formed of a plurality of carrier segments, each having a tongue and groove on opposite sides, to ensure reliable driving of the conveyors and allow for quick and easy replacement of damaged segments.

(10) Response to Argument

In the appellant's arguments regarding the rejections of claims 39 and 78 (as well as claims 40-44, 48-50, 52, 53, 55-75, 79 and 85, which depend therefrom) under 35 U.S.C. 112 first paragraph, the appellant continually places emphasis on supporting the limitation that the entirety of the edge of the workpiece is machined. However, the rejection is actually based on a lack of support that each individual conveyor, having brushes thereon, or each pair of conveyors, in the claims referring to more than one pair of conveyors, individually machines the entirety of the edge. The examiner has agreed that support is provided for the entirety of the edge being machined by the apparatus as a whole, and for this reason has withdrawn the rejections of claims 76 and 80, under 35 U.S.C. 112 first paragraph and that support is provided for each conveyor to individually contact a *portion* of the edge. However, as stated in the rejections above, there is absolutely no support in the original application that each one of the conveyors or each

pair of conveyors is capable of *individually* machining the *entire* edge of a workpiece. The appellant further refers to paragraph 23 of the original application as support that each pair of conveyors is capable of machining the entire edge of a workpiece. However, the cited section merely states that the entire edge may be machined in a single pass through the apparatus (as a whole), which again supports the disclosure that the entire edge is machined but does not provide any support that each pair of conveyors individually machines the entire edge. The appellant argues that because claim 46, having a similar limitation, is not rejected, that claims 39 and 78 should also not be rejected. However, the limitation in claim s46 indicates that each brush machines the edge surface (which does not require each brush to machine the *entire* edge surface) to ensure that substantially all the edge surface is machined (which does not require the entirety of the edge surface to be machined and is merely stating that each of the brushes machining the edge surface will ensure that the apparatus *as a whole* will machine substantially all of the edge, not each brush individually). Further, the examiner would like to point out that the drawings, specifically Figure 18, does show one pair of conveyors (top and bottom on the right side) that overlap such that the entire edge *may* be contacted by the brushes. However, the drawing does not show that the other pair of conveyors (top and bottom on the left side) is also capable of contacting and machining the entire edge surface.

In reference to the prior art rejections using the Ingromat publication as the base reference, the appellant has argued that the Ingromat apparatus does not desire or

intend to machine or even contact the surface. However, as discussed in the rejections, the apparatus is capable of adjusting the height of the conveyors to vary the distance between brushes, such that the brushes would be *capable* of contacting the surfaces and the edges of a workpiece with a relatively narrow thickness, in the same manner as the appellant's claimed invention. Further, as discussed supra, the shape of the workpiece would further affect the ability of the brushes of the Ingromat apparatus to contact the edge surfaces thereof. For instance, a polygonal cross-section with angled edge surfaces () would allow the brushes to easily contact substantially all the edge surfaces.

The appellant also argues that the Ingromat apparatus would not be capable of "machining" the workpiece to remove an oxide layer. However, as discussed in the rejections, it would have been obvious that the brushes of the Ingromat apparatus may be capable of at least partially removing an oxide layer from a workpiece over a period of time with the pressure of the brushes being adjustable by the height adjustment of the machine. Further, the examiner has provided the Herrington reference, which is intended to remove oxide layers from similar workpieces merely by providing a different type of bristle to the brushes, wherein motivation would be provided by the teaching of Herrington to provide the Ingromat apparatus with alternative brushes having similar bristles to provide the Ingromat apparatus with additional functional applications of removing oxide layers from workpieces, which would extend the range of use and thus increase potential for sales. The appellant further cites a definition of the term "machining" taken from Wikipedia (which is known to be a potentially unreliable

reference), wherein the appellant's own invention is not capable of "machining" based on the cited definition. The appellant's tool is clearly not a lathe, milling machine or drill press, and is not intended to remove excess material in the sense of the definition. Thus, the Ingromat reference, either alone or in view of Herrington, would obviously be capable of "machining" a workpiece in the same sense as the appellant's invention.

The appellant further argues that the Ingromat disclosure of the "Tornado Channel", a compressed air jet, that is indicated *in a different Ingromat publication* for use with a similar apparatus for cleaning debris from grooves and holes teaches away from the use of the brushes to clean an edge of the workpiece. However, an alternate structure does not actually "teach away" from the use of the brushes to "machine" an edge surface, wherein the brushes would be capable of machining the edge surfaces of a workpiece, and such an air jet may still be desirable in such an application to remove any material (oxide layers) removed from the surface of the workpiece by the apparatus.

The appellant continues to argue that the Ingromat and Herrington apparatuses are completely different and should not be combined. However, both references provide an apparatus, using rotating brushes to treat flat narrow workpieces and the only modification suggested by the examiner, in view of the Herrington reference is to change bristles on the brushes, which will provide the Ingromat apparatus with the same function as the Herrington reference. Thus, the references are considered to be pertinent prior art with a clear *prima facie* case of obviousness to combine and modify the Ingromat reference. The appellant also suggests that the references teach away from one another because Herrington doe "machine" workpieces, which creates waste

and particulate matter that must be removed somehow. However, a need to remove debris may be another obvious modification to the Ingromat reference, but would not be a necessity that would lead one of ordinary skill away from combining the references.

The appellant also argues that the Ingromat reference fails to disclose cleaning or machining of any, or the entire, edge surface of the workpiece. However, as discussed supra, the distance between the brushes on the Ingromat reference is adjustable, such that the brushes may obviously be placed close enough to one another to overlap, which would allow for cleaning or machining of the entire edge surface of a workpiece in the same manner as the appellant's claimed invention.

The appellant further questions whether it would be inherent to modify the Ingromat reference. However, none of the rejections suggest inherency for modifying the apparatus. The rejection suggest that the Ingromat reference may be inherently capable of functions, such as removing oxide or contacting edge surfaces, even if the capability is not the disclosed intent for the apparatus, whereas any modification suggested by secondary references is indicated as an *obvious* modification that the secondary references provide motivation for a *prima facie* case of *obviousness*.

Finally, regarding the Ingromat reference, the appellant further argues that the intended use of the apparatus, disclosed as skimming a workpiece, is not adjustable to increase or decrease pressure of the bristles against the workpiece, and suggests that an increased contact pressure may actually damage a workpiece. However, the appellant is again arguing the *intended* use of the apparatus, wherein the spacing between the brushes is adjustable, which would obviously be capable of increasing a

contact pressure of the bristles on the workpiece. The matter of whether or not an increased pressure would damage a workpiece is irrelevant, because the rejections over the prior art relate to the *structure* and *capability* of the apparatus, not a potential issue raised by a particular method of use with any particular workpiece. Even if increased pressure might damage one workpiece, it may also remove oxide, as a desirable operation, from another workpiece. Thus, the undisclosed potential for damage to a possible workpiece does not teach away from any structure or capable function of the prior art apparatus.

Regarding claims 76 and 80, the claims were rejected over the Ingromat reference, alternatively in view of Herrington, as discussed supra, and further in view of Lisec, provided as motivation to angle the bristles relative to the conveyors of Ingromat, and to provide a method that machines the entire edge surface of a workpiece. The appellant argues that the teachings of Lisec to angle the bristles would not be applicable to the Ingromat apparatus because the brushes of Lisec rotate in a different direction than the brushes in the Ingromat reference. However, the teaching of Lisec, suggests that the bristles being angled toward sides of the workpiece in a perpendicular direction to the movement of the workpiece through the apparatus and angled toward opposing sides on separate brushes will allow the bristles to contact the entire edge surface of the workpiece (as seen in Figs. 2 and 3 of Lisec), as well as top and bottom surfaces to allow the entire workpiece to be treated in a single pass through the apparatus, which will be more efficient and cost effective by minimizing time and number of processes and tools required to treat the entire workpiece. Thus, even though the brushes rotate

Art Unit: 3727

in different manners relative to the workpiece, and Lisec cannot draw bristles transversely across the linear width of the workpiece, it is the angle of the bristles that allows for contact with the edge surface, not the motion of the brushes. Thus, it would have been obvious that angling the bristles toward the edge surfaces for the Ingromat apparatus would provide the same effect of treating the entire workpiece, including edge surfaces, as taught by Lisec, and would thus also, make obvious a method of machining a workpiece that ensures the entire edge surface of the workpiece is also machined.

The appellant also argues that the Ingromat reference teaches away from brushes aligned in the manner disclosed by Lisec. However, as discussed supra, the Examiner applies the teaching of Lisec to suggest angling the bristles on the conveyor driven brushes of Ingromat, not modifying the brushes of the Ingromat apparatus to rotate in the same manner as the brushes of Lisec.

Therefore, after consideration of the appellant's arguments, the examiner hereby maintains all of the above listed rejections.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

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